RAW SEQUENCE LISTING

The Biotechnology Systems Branch of the Scientific and Technical Information Center (STIC) no errors detected.

Application Serial Number: _10/071,751A_
Source: _1FWl6_
Date Processed by STIC: _10/18/05_

ENTERED

CRF Errors Edited by the STIC Systems Branch

Serial Number: _/0/071, 751A_   CRF Edit Date: _/0/19/05_
                                        Edited by: _Av_

____ Realigned nucleic acid/amino acid numbers/text in cases where the sequence
text "wrapped" to the next line

____ Corrected the SEQ ID NO. Sequence numbers edited were:

_____

____ Inserted or corrected a nucleic number at the end of a nucleic line. SEQ ID
NO's edited:

_____

_/_ Deleted: _/_ invalid beginning/end-of-file text ; ___ page numbers

____ Inserted mandatory headings/numeric identifiers, specifically:

_____

____ Moved responses to same line as heading/numeric identifier, specifically:

_____

____ Other:

_____
_____
_____

Revised 09/09/2003

IFW16

RAW SEQUENCE LISTING   DATE: 10/19/2005
PATENT APPLICATION: **US/10/071,751A**   TIME: 08:40:52

Input Set : **N:\AMC\071751.txt**
Output Set: **N:\CRF4\10192005\J071751A.raw**

SEQUENCE LISTING
```
 3 (1) GENERAL INFORMATION:
 5      (i) APPLICANT: Frank, Glenn R.
 6                    Wu Hunter, Shirley
 7                    Wallenfels, Lynda
 9     (ii) TITLE OF INVENTION: NOVEL ECTOPARASITE SALIVA PROTEINS AND
10                              APPARATUS TO COLLECT SUCH PROTEINS
12    (iii) NUMBER OF SEQUENCES: 88
14     (iv) CORRESPONDENCE ADDRESS:
15          (A) ADDRESSEE: SHERIDAN ROSS P.C.
16          (B) STREET: 1700 LINCOLN ST., SUITE 3500
17          (C) CITY: DENVER
18          (D) STATE: CO
19          (E) COUNTRY: U.S.A.
20          (F) ZIP: 80203
22      (v) COMPUTER READABLE FORM:
23          (A) MEDIUM TYPE: Floppy disk
24          (B) COMPUTER: IBM PC compatible
25          (C) OPERATING SYSTEM: PC-DOS/MS-DOS
26          (D) SOFTWARE: PatentIn Release #1.0, Version #1.30
28     (vi) CURRENT APPLICATION DATA:
```
C--> 29   **(A) APPLICATION NUMBER: US/10/071,751A**
C--> 30   **(B) FILING DATE: 07-Feb-2002**
```
31          (C) CLASSIFICATION:
33   (viii) ATTORNEY/AGENT INFORMATION:
34          (A) NAME: Connell, Gary J.
35          (B) REGISTRATION NUMBER: 32,020
36          (C) REFERENCE/DOCKET NUMBER: 2618-17-C4
38     (ix) TELECOMMUNICATION INFORMATION:
39          (A) TELEPHONE: 303/863-9700
40          (B) TELEFAX: 303/863-0223
46 (2) INFORMATION FOR SEQ ID NO: 1:
48      (i) SEQUENCE CHARACTERISTICS:
49          (A) LENGTH: 26 amino acids
50          (B) TYPE: amino acid
51          (C) STRANDEDNESS:
52          (D) TOPOLOGY: linear
54     (ii) MOLECULE TYPE: protein
56     (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 1:
58          Met Arg Gly Asn His Val Phe Leu Glu Asp Gly Met Ala Asp Met Thr
59          1               5                  10                  15
61          Gly Gly Gln Gln Met Gly Arg Asp Leu Tyr
62               20                  25
```

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              RAW SEQUENCE LISTING              DATE: 10/19/2005
              PATENT APPLICATION: US/10/071,751A   TIME: 08:40:52

              Input Set : N:\AMC\071751.txt
              Output Set: N:\CRF4\10192005\J071751A.raw

  66  (2) INFORMATION FOR SEQ ID NO: 2:
  68      (i) SEQUENCE CHARACTERISTICS:
  69          (A) LENGTH: 12 amino acids
  70          (B) TYPE: amino acid
  71          (C) STRANDEDNESS:
  72          (D) TOPOLOGY: linear
  74     (ii) MOLECULE TYPE: protein
  76     (ix) FEATURE:
  77          (A) NAME/KEY: Xaa = Tyr or Asp
  78          (B) LOCATION: 5
  80     (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 2:
W--> 82          Lys Tyr Arg Asn Xaa Xaa Thr Asn Asp Pro Gln Tyr
  83              1               5                   10
  86  (2) INFORMATION FOR SEQ ID NO: 3:
  88      (i) SEQUENCE CHARACTERISTICS:
  89          (A) LENGTH: 27 amino acids
  90          (B) TYPE: amino acid
  91          (C) STRANDEDNESS:
  92          (D) TOPOLOGY: linear
  94     (ii) MOLECULE TYPE: protein
  96     (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 3:
  98          Glu Ile Lys Arg Asn Asp Arg Glu Pro Gly Asn Leu Ser Lys Ile Arg
  99              1               5                   10                  15
 101          Thr Val Met Asp Lys Val Ile Lys Gln Thr Gln
 102                          20                  25
 110  (2) INFORMATION FOR SEQ ID NO: 4:
 112      (i) SEQUENCE CHARACTERISTICS:
 113          (A) LENGTH: 23 amino acids
 114          (B) TYPE: amino acid
 115          (C) STRANDEDNESS:
 116          (D) TOPOLOGY: linear
 118     (ii) MOLECULE TYPE: protein
 120     (ix) FEATURE:
 121          (A) NAME/KEY: Xaa = Ala or His
 122          (B) LOCATION: 8
 124     (ix) FEATURE:
 125          (A) NAME/KEY: Xaa = Ala or His
 126          (B) LOCATION: 9
 129     (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 4:
W--> 131          Leu Lys Asp Asn Asp Ile Tyr Xaa Xaa Arg Asp Ile Asn Glu Ile Leu
 132              1               5                   10                  15
 134          Arg Val Leu Asp Pro Ser Lys
 135                          20
 138  (2) INFORMATION FOR SEQ ID NO: 5:
 140      (i) SEQUENCE CHARACTERISTICS:
 141          (A) LENGTH: 27 amino acids
 142          (B) TYPE: amino acid
 143          (C) STRANDEDNESS:
 144          (D) TOPOLOGY: linear
```

```
146        (ii) MOLECULE TYPE: protein
148        (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 5:
W--> 150        Asn Tyr Gly Arg Val Gln Ile Glu Asp Tyr Thr Xaa Ser Asn His Lys
151             1           5               10      Xaa         15
153             Asp Xaa Glu Glu Lys Asp Gln Ile Asn Gly Leu
154                     20                  25
157   (2) INFORMATION FOR SEQ ID NO: 6:
159        (i) SEQUENCE CHARACTERISTICS:
160             (A) LENGTH: 18 amino acids
161             (B) TYPE: amino acid
162             (C) STRANDEDNESS:
163             (D) TOPOLOGY: linear
165        (ii) MOLECULE TYPE: protein
167        (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 6:
W--> 169        Lys Tyr Arg Asn Xaa Tyr Thr Asn Asp Pro Gln Leu Lys Leu Leu Asp
170             1           5               10              15
172             Glu Gly
175   (2) INFORMATION FOR SEQ ID NO: 7:
177        (i) SEQUENCE CHARACTERISTICS:
178             (A) LENGTH: 22 amino acids
179             (B) TYPE: amino acid
180             (C) STRANDEDNESS:
181             (D) TOPOLOGY: linear
183        (ii) MOLECULE TYPE: protein
185        (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 7:
W--> 187        Tyr Phe Asn Asp Gln Ile Lys Ser Val Met Glu Pro Xaa Val Phe Lys
188             1           5               10              15
190             Tyr Pro Xaa Ala Xaa Leu
191                     20
194   (2) INFORMATION FOR SEQ ID NO: 8:
196        (i) SEQUENCE CHARACTERISTICS:
197             (A) LENGTH: 20 base pairs
198             (B) TYPE: nucleic acid
199             (C) STRANDEDNESS: single
200             (D) TOPOLOGY: linear
202        (ii) MOLECULE TYPE: DNA (genomic)
204        (ix) FEATURE:
205             (A) NAME/KEY: misc_feature
206             (B) LOCATION: 1..20
207             (D) OTHER INFORMATION: /label= primer
209        (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 8:
211        TGRTTTCCWA TRAARTCTTC                                        20
214   (2) INFORMATION FOR SEQ ID NO: 9:
216        (i) SEQUENCE CHARACTERISTICS:
217             (A) LENGTH: 225 base pairs
218             (B) TYPE: nucleic acid
219             (C) STRANDEDNESS: single
220             (D) TOPOLOGY: linear
222        (ii) MOLECULE TYPE: DNA (genomic)
```

RAW SEQUENCE LISTING   DATE: 10/19/2005
PATENT APPLICATION: US/10/071,751A   TIME: 08:40:52

Input Set : **N:\AMC\071751.txt**
Output Set: **N:\CRF4\10192005\J071751A.raw**

```
224     (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 9:
226     GAATTCGGCA CGAGTGAAAT TCAATATTTT GTTTTACATT AAATTTTTCA AATTCGATAT      60
228     GAAATTTTTA CTGGCAATTT GCGTGTTGTG TGTTTTATTA AATCAAGTAT CTATGTCAAA     120
230     AATGGTCACT GAAAAGTGTA AGTCAGGTGG AAATAATCCA AGTACAGAAG AGGTGTCAAT     180
232     ACCATCTGGG AAGCTTACTA TTGAAGATTT TTGTATTGGA AATCA                     225
239 (2) INFORMATION FOR SEQ ID NO: 10:
241     (i) SEQUENCE CHARACTERISTICS:
242         (A) LENGTH: 15 base pairs
243         (B) TYPE: nucleic acid
244         (C) STRANDEDNESS: single
245         (D) TOPOLOGY: linear
247    (ii) MOLECULE TYPE: DNA (genomic)
249    (ix) FEATURE:
250         (A) NAME/KEY: misc_feature
251         (B) LOCATION: 1..15
252         (D) OTHER INFORMATION: /label= primer
254    (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 10:
256     AATTCGGCAC GAGTG                                                       15
259 (2) INFORMATION FOR SEQ ID NO: 11:
261     (i) SEQUENCE CHARACTERISTICS:
262         (A) LENGTH: 565 base pairs
263         (B) TYPE: nucleic acid
264         (C) STRANDEDNESS: single
265         (D) TOPOLOGY: linear
267    (ii) MOLECULE TYPE: cDNA
269    (ix) FEATURE:
270         (A) NAME/KEY: CDS
271         (B) LOCATION: 45..314
274    (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 11:
276     TGAAATTCAA TATTTTGTTT TACATTAAAT TTTTCAAATT CGAT ATG AAA TTT TTA      56
277                                                      Met Lys Phe Leu
278                                                       1
280     CTG GCA ATT TGC GTG TTG TGT GTT TTA TTA AAT CAA GTA TCT ATG TCA     104
281     Leu Ala Ile Cys Val Leu Cys Val Leu Leu Asn Gln Val Ser Met Ser
282      5               10                  15                  20
284     AAA ATG GTC ACT GAA AAG TGT AAG TCA GGT GGA AAT AAT CCA AGT ACA     152
285     Lys Met Val Thr Glu Lys Cys Lys Ser Gly Gly Asn Asn Pro Ser Thr
286                      25                  30                  35
288     GAA GAG GTG TCA ATA CCA TCT GGG AAG CTT ACT ATT GAA GAT TTT TGT     200
289     Glu Glu Val Ser Ile Pro Ser Gly Lys Leu Thr Ile Glu Asp Phe Cys
290                      40                  45                  50
292     ATT GGA AAT CAT CAA AGT TGC AAA ATA TTT TAC AAA AGT CAA TGT GGA     248
293     Ile Gly Asn His Gln Ser Cys Lys Ile Phe Tyr Lys Ser Gln Cys Gly
294                  55                  60                  65
296     TTT GGA GGT GGT GCT TGT GGA AAC GGT GGT TCA ACA CGA CCA AAT CAA     296
297     Phe Gly Gly Gly Ala Cys Gly Asn Gly Gly Ser Thr Arg Pro Asn Gln
298              70                  75                  80
300     AAA CAC TGT TAT TGC GAA TAACCATATT CCGGATGAAA GACCAAATTG            344
301     Lys His Cys Tyr Cys Glu
```

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302      85                      90
304      ATATAAATTA CTAAAATTAT GCTAGATAGC AATCATAAAA TTTTGAAGTT TTCAATGATC    404
306      CTAACATGTT TTGCCTCCAA TTTATTTTAA CAGCAAATTG CTGGAACTTA CCGTACCGTA    464
308      ACTAAATGTT CAAGAAATAC TGAATGTTTA CAAATAGATT ATTATAAATA TTGTAACATT    524
310      GTCTAATATT TATAAGAATT ATATAAACTG AATTGCAAAA A                        565
313  (2) INFORMATION FOR SEQ ID NO: 12:
315      (i) SEQUENCE CHARACTERISTICS:
316          (A) LENGTH: 90 amino acids
317          (B) TYPE: amino acid
318          (D) TOPOLOGY: linear
320      (ii) MOLECULE TYPE: protein
322      (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 12:
324      Met Lys Phe Leu Leu Ala Ile Cys Val Leu Cys Val Leu Leu Asn Gln
325       1               5                  10                  15
327      Val Ser Met Ser Lys Met Val Thr Glu Lys Cys Lys Ser Gly Gly Asn
328                      20                  25                  30
330      Asn Pro Ser Thr Glu Glu Val Ser Ile Pro Ser Gly Lys Leu Thr Ile
331                  35                  40                  45
333      Glu Asp Phe Cys Ile Gly Asn His Gln Ser Cys Lys Ile Phe Tyr Lys
334              50                  55                  60
336      Ser Gln Cys Gly Phe Gly Gly Gly Ala Cys Gly Asn Gly Gly Ser Thr
337          65                  70                  75                  80
339      Arg Pro Asn Gln Lys His Cys Tyr Cys Glu
340                      85                  90
343  (2) INFORMATION FOR SEQ ID NO: 13:
345      (i) SEQUENCE CHARACTERISTICS:
346          (A) LENGTH: 270 base pairs
347          (B) TYPE: nucleic acid
348          (C) STRANDEDNESS: single
349          (D) TOPOLOGY: linear
351      (ii) MOLECULE TYPE: cDNA
353      (ix) FEATURE:
354          (A) NAME/KEY: CDS
355          (B) LOCATION: 1..270
358      (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 13:
360      ATG AAA TTT TTA CTG GCA ATT TGC GTG TTG TGT GTT TTA TTA AAT CAA    48
361      Met Lys Phe Leu Leu Ala Ile Cys Val Leu Cys Val Leu Leu Asn Gln
362       1               5                  10                  15
364      GTA TCT ATG TCA AAA ATG GTC ACT GAA AAG TGT AAG TCA GGT GGA AAT    96
365      Val Ser Met Ser Lys Met Val Thr Glu Lys Cys Lys Ser Gly Gly Asn
366                      20                  25                  30
368      AAT CCA AGT ACA GAA GAG GTG TCA ATA CCA TCT GGG AAG CTT ACT ATT    144
369      Asn Pro Ser Thr Glu Glu Val Ser Ile Pro Ser Gly Lys Leu Thr Ile
370                  35                  40                  45
372      GAA GAT TTT TGT ATT GGA AAT CAT CAA AGT TGC AAA ATA TTT TAC AAA    192
373      Glu Asp Phe Cys Ile Gly Asn His Gln Ser Cys Lys Ile Phe Tyr Lys
374              50                  55                  60
376      AGT CAA TGT GGA TTT GGA GGT GGT GCT TGT GGA AAC GGT GGT TCA ACA    240
377      Ser Gln Cys Gly Phe Gly Gly Gly Ala Cys Gly Asn Gly Gly Ser Thr
```

Raw Sequence Listing before editing (for reference only)
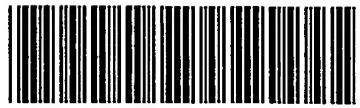
IFW16

RAW SEQUENCE LISTING   DATE: 10/18/2005
PATENT APPLICATION: US/10/071,751A   TIME: 11:11:45

Input Set : E:\2618-17-C4-PUS-2.txt
Output Set: N:\CRF4\10182005\J071751A.raw

                    SEQUENCE LISTING
W-->   3 The following Sequence Listing is submitted pursuant to   *delete*
E-->   5 submitted herewith.
E-->   7 Applicants assert pursuant to 37 CFR 1.821(f) that the
E-->   8 content of the paper and computer readable copies of SEQ ID
E-->   9 NO:1 through SEQ ID NO:88 submitted herewith are the same.
      12 (1) GENERAL INFORMATION:
      14   (i) APPLICANT: Frank, Glenn R.
      15   Wu Hunter, Shirley
      16   Wallenfels, Lynda
      18   (ii) TITLE OF INVENTION: NOVEL ECTOPARASITE SALIVA PROTEINS AND
      19   APPARATUS TO COLLECT SUCH PROTEINS
      21   (iii) NUMBER OF SEQUENCES: (88)
      23   (iv) CORRESPONDENCE ADDRESS:
      24.   (A) ADDRESSEE: SHERIDAN ROSS P.C.
      25   (B) STREET: 1700 LINCOLN ST., SUITE 3500
      26   (C) CITY: DENVER
      27   (D) STATE: CO
      28   (E) COUNTRY: U.S.A.
      29   (F) ZIP: 80203
C--> 31   (v) COMPUTER READABLE FORM:
      32   (A) MEDIUM TYPE: Floppy disk
      33   (B) COMPUTER: IBM PC compatible
      34   (C) OPERATING SYSTEM: PC-DOS/MS-DOS
      35   (D) SOFTWARE: PatentIn Release #1.0, Version #1.30
      37   (vi) CURRENT APPLICATION DATA:
C--> 38   (A) APPLICATION NUMBER: US/10/071,751A
C--> 39   (B) FILING DATE: 07-Feb-2002
      40   (C) CLASSIFICATION:
      42   (viii) ATTORNEY/AGENT INFORMATION:
      43   (A) NAME: Connell, Gary J.
      44   (B) REGISTRATION NUMBER: 32,020
      45   (C) REFERENCE/DOCKET NUMBER: 2618-17-C4
      47   (ix) TELECOMMUNICATION INFORMATION:
      48   (A) TELEPHONE: 303/863-9700
      49   (B) TELEFAX: 303/863-0223

ERRORED SEQUENCES

Does Not Comply
Corrected Diskette Needed

VERIFICATION SUMMARY   DATE: 10/18/2005
PATENT APPLICATION: US/10/071,751A   TIME: 11:11:46

Input Set : E:\2618-17-C4-PUS-2.txt
Output Set: N:\CRF4\10182005\J071751A.raw

L:3 M:244 W: Invalid beginning of sequence listing, Data=[The following Sequence Listing is
submitted pursuant to], Duplicate Sequence Listing Title!
L:4 M:220 C: Keyword misspelled or invalid format, [(v) COMPUTER READABLE FORM:]
L:5 M:243 E: Alpha Header Field expected, Data=[submitted herewith.], General Header Line Not
Processed!
L:7 M:243 E: Alpha Header Field expected, Data=[Applicants assert pursuant to 37 CFR 1.821(f)
that the], General Header Line Not Processed!
L:8 M:243 E: Alpha Header Field expected, Data=[content of the paper and computer readable
copies of SEQ ID], General Header Line Not Processed!
L:9 M:243 E: Alpha Header Field expected, Data=[NO:1 through SEQ ID NO:88 submitted herewith
are the same.], General Header Line Not Processed!
L:38 M:220 C: Keyword misspelled or invalid format, [(A) APPLICATION NUMBER:]
L:39 M:220 C: Keyword misspelled or invalid format, [(B) FILING DATE:]
L:91 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:2 after pos.:0
L:140 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:4 after pos.:0
L:159 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:5 after pos.:0
M:341 Repeated in SeqNo=5
L:178 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:6 after pos.:0
L:196 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:7 after pos.:0
M:341 Repeated in SeqNo=7
L:1634 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:29 after pos.:1152
L:1770 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:30 after pos.:368
L:3527 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:70 after pos.:0
M:341 Repeated in SeqNo=70